UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/813,258	03/20/2001	John W. Garrett	2000-0184C	2600

7590 01/04/2005

Samuel H. Dworetsky
AT&T CORP.
P.O. Box 4110
Middletown, NJ 07748-4110

EXAMINER	
CLARK, ISAAC R	

ART UNIT	PAPER NUMBER
2154	

DATE MAILED: 01/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/813,258	GARRETT ET AL.	
	Examiner	Art Unit	
	Isaac R Clark	2154	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 September 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 March 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-11 are presented for examination.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Priority

3. This application claims priority from Provisional Application 60190633 filed on 03/20/2000, and Provisional Application 60190633 filed on 03/20/2000.

Response to Arguments

4. Applicant's arguments with respect to claims 1-8 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

5. The rejections of claims 1-8 under 35 USC 112, second paragraph are withdrawn in view of the Applicant's amendment.

Claim Rejections - 35 USC § 103

6. Claims 1-3, and 6-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmuelling et al. (US 6,603,758) hereinafter Schmuelling in view of Akgun et al. (US 6,657,991) hereinafter Akgun.

7. As per claim 1, Schmuelling teaches a method of access control in an access network infrastructure connected to a plurality of service networks (Fig. 1, items 116, 118, 120), comprising storing a customer registration database that maintains ranges of network addresses for each of a plurality of available service networks, the network addresses for individual allocation to customers of the available service networks (col.

5, lines 50-58); receiving from a customer using a network access device (Fig. 1, 128) a selection of a service network from the plurality of available service networks (Fig. 5, block 524; col. 7, lines 40-45); receiving a host configuration protocol message acknowledging allocation of a network address to the network access device, the allocation based on the service network selected by the customer and a range allocated to that service network (col. 5, lines 55-57; pool of addresses; col. 8, lines 45-56);

8. Schmuelling teaches creating an entry in a MAC database and using the entry to restrict access to the service network selected by the customer (col. 8, lines 1-5 and lines 27-42).

9. Schmuelling fails to explicitly teach creating an entry in an address resolution protocol cache that maps the network access device to the service network selected by the customer from the host configuration protocol message; and restricting access of the network access device to only the service network selected by the customer, based on the entry in the address resolution protocol cache.

10. Akgun teaches creating an entry in an address resolution protocol cache that maps the network access device to the service network (Fig. 1, item 16) selected by the customer from the host configuration protocol message (col. 20, lines 45-60); and restricting access of the network access device to only the service network selected by the customer, based on the entry in the address resolution protocol cache (col. 26, lines 57-67).

11. It would have been obvious to one of ordinary skill in this art at the time the invention was made to combine the teaching of Schmuelling and Akgun to limit access

to a subscribed network among a plurality of service networks by using host configuration protocol messages to fill an address resolution protocol cache with mappings to the subscribed network and using the cache to restrict access to only the selected network because they both deal with regulating access to service provider networks. Furthermore, the teaching of Akgun to obtain the mapping to the subscribed network using DHCP messages and storing the mapping in an ARP cache would increase network efficiency by reducing the need to broadcast ARP messages on the network in order to populate the ARP table.

12. As per claim 2, Schmuelling teaches the method of claim 1 wherein the host configuration protocol message uses Dynamic Host Configuration Protocol (DHCP) (col. 8, lines 49-46).

13. As per claim 3, Schmuelling and Akgun as applied to claim 1 teaches that the address resolution protocol cache uses Address Resolution Protocol (col. 20, lines 57-58).

14. As per claim 6, Schmuelling teaches the method of claim 1, wherein the plurality of available service networks use the Internet Protocol and wherein the network addresses are Internet Protocol addresses (col. 5, lines 56-58).

15. As per claim 7, Schmuelling teaches the method of claim 1, wherein the plurality of available service networks are subscription services operated by separate Internet Service Providers (Fig. 1, items 116, 118 and 120; col. 2, lines 47-51).

16. As per claim 8, Schmuelling teaches the method of claim 1, wherein each of the plurality of available service networks (Fig. 1, items 116, 118, 120) offer access to an

internet (Fig. 1, item 106; col. 2, lines 47-50) through different Internet Protocol-based services (col. 1, lines 42-46; col. 5, lines 54-58).

17. As per claim 9, Schmuelling fails to explicitly teach the method of claim 2, said creating an entry further comprising; creating the entry in the address resolution protocol cache without broadcasting an ARP request for the network address.

18. Akgun teaches creating the entry in the address resolution protocol cache without broadcasting an ARP request for the network address (col. 24, lines 55-61; use DHCP snooping to create the ARP entry).

19. It would have been obvious to one of ordinary skill in this art at the time the invention was made to combine the teaching of Schmuelling and Akgun to create the ARP cache entries by snooping DHCP messages and avoiding broadcasting and not using broadcasted ARP requests. Furthermore, the teaching of Akgun to obtain the mapping to the subscribed network using DHCP messages and storing the mapping in an ARP cache would increase network efficiency by reducing the need to broadcast ARP messages on the network in order to populate the ARP table.

20. As per clam 10, Schmuelling fails to explicitly teach the method of claim 1, said creating an entry in the address resolution protocol cache further comprising: mapping the network address to a Media Access Control (MAC) address of the service network selected by the customer.

21. Akgun teaches creating an entry in the address resolution protocol cache further comprising: mapping the network address to a Media Access Control (MAC) address of the service network selected by the customer (col. 24, lines 34-44).

22. It would have been obvious to one of ordinary skill in this art at the time the invention was made to combine the teaching of Schmuelling and Akgun to map the network addresses to a MAC address of the selected service network because they both deal with regulating access to service provider networks. Furthermore, the teaching of Akgun to populate the address resolution cache with MAC address and network address pairs would provide improved security by using the unique MAC identifier to verify that the transmission was authorized (See Akgun: col. 26, lines 57-65, invalid MAC/IP pair trapped to indicate an error).

23. As per claim 11, Schmuelling teaches the method of claim 1, the selection of the service network comprising a subscription to the service network (col. 4, lines 23-41).

24. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schmuelling and Akgun as applied to claim 1 above, and further in view of Hrastar et al. (US Published Application 2001/0019557) hereinafter Hrastar.

25. As per claim 4, Schmuelling fails to explicitly teach the method of claim 1, further comprising: flushing the entry in the address resolution protocol cache when the network address is released by the network access device.

26. Hrastar teaches flushing the entry in the address resolution protocol cache when the network address is released by the network access device (Paragraphs 0128-0129).

27. It would have been obvious to one of ordinary skill in this art at the time the invention was made to combine the teaching of Schmuelling and Hrastar to modify the registration system taught by Schmuelling to remove entries in the address resolution protocol cache then the network address is released by the network access device

because they both deal with automatic assignment of network addresses to network access devices using DHCP server messages. Furthermore, the teaching of Hrastar to remove an entry in the address resolution protocol cache if the network address is released by the network access device allows the service provider to return the released IP address to the its list of available IP addresses thus conserving the limited number of available addresses for reuse.

28. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schmuelling and Akgun as applied to claim 1 above, and further in view of Sugita (US 6,396,845).

29. As per claim 1, Schmuelling fails to explicitly teach the method of claim 1, wherein the entry in the address resolution protocol cache has an expiration time set to an expiration time of the network address allocated to the network access device.

30. Sugita teaches the method of claim 1 wherein the entry in the address resolution protocol cache additionally includes an expiration time set to an expiration time of the network address allocated to the network access device (item 26d, Fig. 2; col. 2, lines 53-57; col. 3, lines 33-35).

31. It would have been obvious to one of ordinary skill in this art at the time the invention was made to combine the teachings of Schmuelling and Sugita because they all deal with maintaining MAC and IP address pairs in an address resolution protocol cache to be used when routing traffic in a communications network. Furthermore, the teaching of Sugita of having the address resolution protocol cache entry additionally include an expiration time set to an expiration time of the network address allocated to

the network would allow expiring entries in the cache individually based on their age, resulting in increased security by removing stale IP/MAC address pairs that could be used to gain unauthorized access to a network.

Conclusion

32. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patents and publications are cited to further show the state of the art with respect to "Service selection in a shared access network providing access control".

i.	US 6,240,091	Ginzboorg et al.	Authenticated access to service providers.
ii.	US 6,023,724	Bhatia et al.	Controlling access to network infrastructure.
iii.	US 6,073,178	Wong	Use MAC as identifiers to verify trusted subscribers
iv.	US 6,697,862	Beser et al.	Increased security by removing stale ARP entries

33. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Isaac R Clark whose telephone number is (571)272-3961. The examiner can normally be reached on Monday-Friday 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John A Follansbee can be reached on (571)272-3964. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

IRC

JOHN FOLLANSBEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100